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WEIGHT LOSS IN A GROUP
A case study in Kokkola

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ABSTRACT

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Weight Loss in a Group: A Case Study in Kokkola

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A case study of 10-week group-based weight loss program was carried out in Kokkola, Finland in the year of 2008. The important related issues and key terminology are discussed in this research study. The key goals of the study were to find out the usefulness of the group program and the successfulness of the participants in weight loss both during and after the program as well as the exercising roles and previous experiences.

The group consisted of 12 women and seven men from different ages, previous experiences, activities in work life, etc. The data used in the study was collected in eight group meetings and in a control meeting arranged six months after the program. In addition, a questionnaire was used.

The results indicated the group study as successful since the participants lost 3.3% of their weight within 10 weeks. In conclusion, women were more successful than men in the weight loss and succeeded better in maintaining the weight after the program. The most important success factor appeared to be activity of working life.

Key words
group therapy, obesity, overweight, weight loss, weight maintenance

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1 INTRODUCTION

A significant amount of previous research has shown that overweight, obesity and related diseases are important and increasing problems all over the world especially in developed countries such as Finland. It is very important to explore possible strategies to overcome these problems. One important solution is different weight control methods and programs. The purpose of this thesis was to study the effects of weight loss in a group and related issues. The research was carried out in quantitative case study by collecting data from Kokkola, Finland. The studied group participated to a 10-week program and had eight meetings in this program. In addition, a control meeting was arranged after the program.

The key issue of this research was to investigate whether these kinds of group programs really help people to lose weight during the program and to maintain the weight after the program. The successfulness is not obvious based on the previous research. On the contrary, people often regain weight after finishing in weight loss groups. It was hard to find studies reporting successful weight maintenance strategies or methods, namely prevention of weight gain again despite of many researches on obesity and related issues. In several previous studies, it has been reported that physical exercising has an important role in weight maintenance but the role in weight loss is not significant. Previous experiences on weight loss programs are also often considered important.

The goal of this study was providing information to health care centre nutritionists, public health nurses and others, who are in-charge of the weight loss groups. The study aimed to help professionals to understand driving forces behind the weight control. Weight control includes or at least should include a lot more than just a short-term diet in most cases. It should be long-term weight maintenance that includes learning new behavior and attitude. The purpose of this study was also to provide information about the usefulness of group based weight maintenance. The goal was also to identify possible needs to change the program to guarantee successful long-term weight maintenance.

2 OVERWEIGHT

2.1 Obesity and overweight

Overweight is to weigh more than the standard weight considering one's height and age. Correspondingly, obesity refers to a complex, multifaceted condition in which excessive body fat places a person at risk of multiple health problems (Lang & Froelicher 2005, 103). Both obesity and overweight can be considered as a complex interaction of behavioural, environmental and genetic factors. (Chopra, Galbraith & Darnton-Hill 2002, 952-8).

One of the most central measures for overweight and obesity is called Body Mass Index (BMI). It is calculated by equation (1):

$$BMI = \frac{W}{h^2} \quad , \tag{1}$$

where W refers to the weight of the person in kg and h to the height in meters. In normal case, BMI varies between 18.5 and 25. Individuals whose BMI values are within the interval 25 to 30 are considered to have overweight. If the BMI is more than 30, the obesity is serious and the health risks will increase (Utriainen, Sarlio-Lähteenkorva, Aittomäki & Lahelma 2006, 10). The different classes of obesity and probabilities of illnesses are illustrated in Table 1.

TABLE 1. Obesity classifications. (Hakala, 2005)

Obesity class	BMI (kg/m^2)	Probability of illnesses
Mild	25–29.9	Moderate
Significant	30–34.9	Clear
Hard	35–39.9	Very high
Serious illness	≥40	Multiple (risk of death)

It is not obvious how to define the possible obesity or the ideal weight despite of the above BMI-based definitions. The BMI limits are rather broad. For example, the normal weight for a 160 cm height person is 47−60 kg while with 180 cm height; the normal weight is 60−81 kg. Moreover, the BMI weight limits do not separate the genders. It is also noteworthy that children have different BMI limits than the adults. More precisely, BMI is at the lowest level with six years old children. After that the limits increase towards adults' values as the child grows. The adults' BMI values are used from the age of 18. (Kannas, Eskola, Räsänen & Mustajoki 2008, 118).

Dudek (2006) claimed that there is no normal or desirable weight from the health perspective. The relationships between the body weight and good health are quite complicated. A more important and reliable disease indicator is the location of the excess fat of the body. Central adiposity means that fat is stored in the abdomen and trunk. It is more dangerous than fat stored for example in tights and bottom. Generally, men and post-menopausal women tend to store fat in the upper body and abdominal area. The waist circumference is common measurement to assess the abdominal fat. According to Käypä hoito suositus (2007), the central adiposity risk limits of serious illnesses measured by waist circumference are 100 cm for men and 90 cm for women.

In practice, overweight is the result of the positive energy imbalance; too high energy intake and too small energy expenditure. Typically, an increased consumption of refined foods, high fat foods and foods of animal origin, as well as an increasingly sedentary lifestyle would result in weight gain (Chopra et al. 2002, 952−958). There are only rare cases where the reasons can be found among the diseases caused by metabolism or pituitary gland (Karhunen & Mustajoki 2004, 115; Utriainen et al. 2006, 12).

According to Aromaa and Koskinen (2004, 41) obesity is the most common among people from 55 to 85 years old that reached about 30% of the corresponding population. The international obesity task force estimated that the prevalence of obesity in Europe is 10−20% for men and 10−20% for women, having increased 10−40% in the last decade (International obesity task force, 2008). On the other hand, a research called health behaviour and health among Finnish adult population in 2007 showed that among 43% of women and among 57% of men in Finland the BMI is over 25 (Helakorpi, Prättälä&

Uutela 2007, 13). The adulthood obesity in Finland is as common as in the European continent but not as common as in Southern Europe and United Kingdom. However, the adulthood obesity has not increased in Finland as fast as in most western countries during the past few years (Rissanen & Fogelholm 2006, 18−19).

Obesity also causes huge financial losses to the society. The cost is more than 260 million Euros per year in Finland only. The total cost of obesity with respect to the healthcare total cost is estimated about 3% and with respect to the social security costs the proportion is about 1.8% (Pekurinen 2006, 1213).

2.2 Childhood and adolescents overweight

There is an increased amount of childhood obesity. The overweight of Finnish school children has doubled since 1977. In the beginning of the century, 1−5% of boys and 2−9% of girls who were below seven years old were overweight. Nowadays there are 15−19% obese boys and 9−13% obese girls. The amount of overweight Finnish children and adolescent equals approximately the average of Europeans while the amount of unhealthy obese children and adolescent in Finland is still small (Haarala, Honkanen, Mellin & Tervaskanto-Mäentausta 2008, 368).

The overweight of young men has grown faster after the age of 25 years. On the other hand, two thirds of the university students considered themselves normal with respect to the weight (Haarala et al. 2008, 367).

Rimpelä et al. (2004) studied the development of obesity among girls and boys whose age varied within 12−18 years. The study concludes that the obesity has increased steadily in both cases and is more common among with boys. A noticeable exception was that the obesity among 12 years old girls increased heavily in 2001 and diminished back in 2003 (Rimpelä, Rainio & Pere 2004).

The childhood overweight causes several serious problems. It also increases the risk of illnesses in adulthood. An obese child has multiple risks to have metabolic syndrome compared to a child with normal weight. Moreover, the attitudes against obese children are often negative and the overweight children are more often bullied. They are also often socially isolated and have fewer friends compared to children with normal weight (Salo & Mäkinen 2006, 295).

The overweight children have often more problems than their contemporaries with their body images. Obese girls have in particular a bigger risk for problems with self-esteem compared to boys. In these cases, the attitude of the parents is often critical especially when the parents are worried about their child's overweight. Parents' behaviour can even increase the self-esteem problems of the child. The overweight children can also suffer from depression, anxiety and eating disorders more often than other children. Adolescents' depression and behavioural disorders can also facilitate adulthood overweight (Salo & Mäkinen 2006, 296-297).

The factors of risky environment for overweight are listed in Table 2. Four main factors for the risk environment are separated in the table. In the obesity development, unhealthy food, family, leisure time and exercising as well as education and communication have important roles.

TABLE 2. The factors of risk environment for obesity (Lagström 2006, 290)

Unhealthy food	Family	Leisure time and exercising	Education and communication
Pricing	Genetics	School environment	Contents of courses at school
Commercial actions	Obesity and behaviour of adults	Home environment	Media (culture, fashion etc.)
	Education and social class	Passive leisure time actions (TV, video games etc)	
	Values	Exercising not possible	

Nutrition and energy intake play a big role in the overweight development. The nutrition habits are difficult to investigate because people tend to underestimate the size of a meal. Apart from the meal size, the quality of the food is also important. In addition to fat, one should pay attention to the amount of protein that may also expose to weight gain. Important reasons for more unhealthy food can be found from changing habits and culture. The traditional eating culture has been replaced by unhealthy snacks and titbits. The use of sweet refreshments and candies has grown as well as the size of the packages and portions. On the other hand, the average energy intake among Finnish adolescents has not changed much during the last decades and in fact the quality of fat in the food has improved (Lagström 2006, 290).

The overweight of parents, low social class and low educational level are known risk factors for childhood overweight. About 80% of the overweight children have at least one overweight parent. In general, the environmental issues are however more significant than the hereditary reasons for the overweight of the children. It has for example been shown that in one-child families the child has a higher risk for overweight. Children living in a single-parent family tend to be obese more often than children living in a two-parent family. (Lagström 2006, 288, 290).

Decreasing physical activity of children and adolescents is an important reason for the increasing obesity. Only half of the boys and one third of the girls have enough physical activity among small children less than seven years old. Respectively, up to 10% of children at school age exercise less than an hour per week (Lagström 2006, 284−285). Meanwhile, 8% of university students do not exercise at all (Haarala et al. 2008, 367). The main reasons were that the exercise lessons at school have been reduced and traditional outdoor games and plays are uncommon among children. Leisure time activities such as using TV, DVD and computer are more and more popular among population. This decreases the physical activity and may also increase the use of snacks (Lagström 2006, 291).

In addition, shorter sleep duration has been reported recently to be associated with an increased prevalence and incidence of the childhood and adolescence obesity (Rennie, Wells, McCaffrey & Livingstone 2006, 399). It has been studied that the Finnish school

children sleep less than the school children in the other European countries. Every fourth Finnish child at comprehensive school goes to bed after eleven o'clock (Haarala et al. 2008, 368).

2.3 Health risks of overweight

There is a large number of diseases caused by obesity. The most common is Diabetes Type 2, referring to the fact that 75% of all Finnish diabetics have Diabetes Type 2 (Mustajoki & Kaukua 2006, 1207). Diabetes Type 2 is a state where the effect of insulin has decreased in liver, adipose and muscle tissues. It can also be caused by the dysfunction of insuline production in gallbladder (Saraheimo & Kangas 2006b, 13). Diabetes Type 2 can be mainly symptom less for a long time. The risk factors for this disease are central adiposity and lack of exercise. Diabetes Type 2 is primary a self-managed disease. It is treated by weight loss, exercising and if necessary with medicine. The goal of the treatment is to minimize the symptoms and to increase the everyday well-being (Saraheimo & Kangas 2006a, 9−11). Diabetes Type 2 can be part of the state called metabolic syndrome. That is state where significant obesity and dysfunction of glucose metabolism causes a serious risk of heart and circulation diseases (Saraheimo & Kangas 2006b, 15−17).

Overweight increases the risk of high blood pressure and cardiac disease, gallbladder disease, osteoarthritis and some forms of cancer (Anjali 2004, 3). Based on a research with Finnish data, disability with people whose BMI is over 30 is more common compared to people with normal weight (Uusitupa 2006a, 36). Overweight together with diseases will decrease the quality of life. It affects significantly the physical, psychological and social activities (Kaukua 2006, 39).

Pain, difficulties with sexual interaction, low self-esteem and lack of energy are other problems affecting the quality of life. The previous research has also shown that overweight women typically have **a** lower quality of life than overweight men. (Kaukua 2006, 44).

From the health care professionals viewpoint, significant obesity causes problems in some preventive health interventions, such as papinoculou smears (PAPA) and mammography. More precisely, obese women are more likely to have false-positive results than non-obese women (Elmore, Carney & Abraham 2004).

2.4 Motivations for weight loss

It is possible to identify several reasons that motivate people for weight loss. For example, the diet or weight loss product industry aggressively promotes the idea that overweight people are unhappy and weight loss will make people happier and better adjusted socially (Blaine & McElroy 2002, 355).

According to the study by Sarlio-Lähteenkorva (2000), women want to lose weight because of social pressure to have acceptable body. Slim and thin body is pictured as an instrument for better life. The ideal body image consists of improved health and functional capacity, better self-esteem and social acceptance. Many females particularly feel dissatisfied with their body and perceive themselves as being too fat regardless of their actual weight. Dissatisfaction with own weight and desire to be thin is very common nowadays (Wong & Huang 1999, 198).

3 REASONS OF WEIGHT GAIN

3.1 Key factors affecting overweight

There are several factors affecting overweight. The main reasons for gaining weight include lifestyle, nutrition and lack of physical activity. Fatty food and too large portions are well-known reasons for overweight. On the other hand, fibre rich food**,** for example berries and vegetables would decrease the probability of gaining weight. The eating and lifestyle habits that have been learned in the childhood are an important factor for gaining weight. More precisely, the important issue here is the role of food in the childhood. That is, has food or candy for instance been used for controlling the behaviour of a child. This can lead to the dependency of food or eating for consolation at a later stage of life. The taste habits are also formed in the childhood. The amount of physical activity and energy expenditure at work and leisure time have decreased, more than the possibilities to compensate by decreasing energy intake (Kannas et al. 2008, 126).

There are also other factors affecting overweight such as environment and social class. For example, the overweight is more common in the outer region of Helsinki especially in West and Middle Finland. It has also been shown that overweight is a bigger problem at lower social classes (Helakorpi et al. 2007, 17). The alcohol consumption has been increasing in Finland and that may have an impact to the weight gain in the population (Rissanen & Fogelholm 2006, 19). Moreover, according to Adolfsson, Carlson, Unden & Rossner (2002) most women gain weight during the pregnancy. Smoking cessation is listed as one potential reason for gaining weight.

Vulnerability of getting fat seems to be genetic although there is only a little knowledge regarding the role of genetics and inheritance in getting overweight. Normal overweight is a summary of numerous different abnormalities at genes and lifestyle (Uusitupa 2006b, 95−98).

There are some very rare syndromes that can lead to overweight. The best-known syndrome is Prader-Wills. Other syndromes include Cohen- and Bardet-Biedlin syndromes. Typical feature is very difficult obesity already at the stage of childhood. The monogenetic overweight is caused by abnormality at lepton gene or by its receptor. It is however rare with humans. The polygenetic overweight means that there are mutations or polymorphous in several genes. This is only one explanation and it has not been proved yet (Uusitupa, 2006b, 95−98).

3.2 Role of energy balance in overweight

The daily energy intake can be divided in three parts: physical activity, basal metabolism and energy waist caused by food. The larger the fatless body mass is the better is the function of the basal metabolism. People with overweight have normally larger fatless bodyweight that results into more efficient basal metabolism (Fogelholm 2006, 75). Basal metabolism varies from 500 kilocalories (kcal**)** (among babies) to 1600−1900 kcal (among adults). Basal metabolism is 15−20% higher among men than among women. Age affects basal metabolism and decreases it about 2% every ten years due to the lack of muscle tissue. Environment and the temperature of human body affect the basal metabolism (Fogelholm 2006, 74). Small or inefficient basal metabolism can also be the reason for overweight (Uusitupa 2006b, 90).

People who store fat effectively will gain weight easily. The lipoprotein lipases at adipose tissue are important enzymes that regulate the storage of lipids. A large activation of the enzyme may lead to overweight (Uusitupa 2006b, 92).

Eating is regulated by biological mechanisms. Brains and hypothalamus in particular play a big role at regulation of the eating. Natural for these eating regulation mechanisms is that it is easier and more typical to eat more, rather than eating less, than the energy intake requires. Tasty and delicious outlook of the meal and huge amount of different meals will increase the amount of eating (Karhunen & Mustajoki 2006, 109). Overweight can be result of dysfunction at eating regulation mechanisms that regulate food intake, hunger and

feeling of satiety. The dysfunction at the use of energy suppliants or differentiation at basal metabolism may also affect the eating regulation (Uusitupa 2006b, 90−91).

Eating also provides satisfaction. There are two different systems in brains that provide satisfaction while eating: wanting food and liking food. The first makes person to eat while the second makes a person to like food. Satiety can also be separated to two types: satiety that makes individual to stop eating and satiety that affects between the meals by making sure that the individual does not start up eating (Karhunen & Mustajoki 2006, 111).

The size of food portions has been increasing during the past years, especially in foods contained with a lot of sugar and fat. Energy rich fast food has been a huge success in western world. This affects significantly the weight gain. It is noteworthy that the subjective feeling of satiety and feeling of hunger have stayed the same even though the amount of energy per meal has increased (Karhunen & Mustajoki 2006, 114).

The physical activity is in practice a result of muscle-activity. The proportion of physical activity is rarely more than 30−40% of the daily energy waist. The most significant parts of basic daily activity include: way to work exercise, working, homework, shopping and taking care of children. The load of basic activity is normally from light to moderate. Basically, the effect of physical exercises to daily energy waist is small. (Fogelholm 2006, 78**).**

4 PREVENTION OF OVERWEIGHT AND HEALTH PROMOTION

4.1 Prevention of overweight

Treating overweight is rather difficult. Therefore prevention is important. Prevention refers to maintaining of the functional capacity and quality of life of an individual. Prevention can be done by supporting the independency and by decreasing treatment needs. The key idea is that the knowledge and the experience of success increase motivation (Torpström & Pagnus 1999, 340).

Health professionals need high quality know-how not just about health care but also about information searching to be able to do preventive work. Skills for implementing campaigns and project planning are important. The multi-professional co-operation skills and knowledge of health care laws are useful. Health professionals need to actively follow up the latest research and to be brave enough to bring up own authority to the public (Haarala et al. 2007, 417).

Prevention of overweight should be targeted at whole population, especially at those who are in high risk of getting overweight related diseases. For example, eating habits are learned already in the childhood. The programs to prevent overweight should be focused specially on families with children, kindergartens, schools, defence forces and generally public health and occupational health (Edelman & Mandle 2006, 220).

4.2 Health promotion of overweight

Health education is one of the primary prevention techniques available to avoid major causes of disability and deaths today. The personal health promotion is usually provided through health education. The health education includes health promoting habits, values and attitudes that must be learned through practice. Health education can be given individually or in groups. Leaflets and media can be used to reach larger population. The

goal of modern health education is to maintain health, prevent illnesses, improve quality of life and support client-directed autonomous decision making (Redman 2004, 7-9).

Health education includes well-designed plan with clear statement of goals and meaningful objectives. Methods that are chosen to be used in counselling should help the individuals to recognize their own health risks. The method should also support the individual to make the needed behavioural and attitude changes (Haarala et al. 2007, 416). It is important to find appropriate and effective teaching-learning strategies to ensure success. The health education should be kept simple and understandable. One should avoid professional language and use instead casual language (Redman 2004, 55-58). Developmental stage, cognitive level and interest of individual should also be taken into account (Edelman & Mandle 2006, 219). Moreover, it is preferable to use a variety of media such as lecture, still picture, television and audio records. It is also important to move from basic to more complex information to give audience a positive sense of understanding and accomplishment (Redman 2004, 55-58).

The health education has been a compulsory subject at Finnish comprehensive school, high school and second grade schools since 2002. The contents are determined by an education board. The aim of the health education at schools is to build ability to understand health and encourage individuals to make healthy choices in their own life. Those who teach health education are required the validity of a teacher. However, school nurses and school doctors can take part to education (Haarala et al. 2007, 375).

Prochaska and Norcross (2007) described a trans-theoretical model of change that is suitable tool for both individual and group counselling in health care. It includes several stages of changes in a behavioural change process. The model consists of five stages: pre-deliberation stage, deliberation stage, preparing stage, action stage and finally maintaining stage. The change process does not progress straightforward from stage to stage. Instead, it progresses in spirals and cycles and failing is part of the process. After failing, the individual starts behavioural change process once more from a higher position in the spiral. Individual may need several attempts to learn new behaviour model.

Moreover, the Finnish government has stated that advertising of groceries and food**,** directed to children and adolescent, should not be incongruity to health promotion. If necessary, the government will restrict and monitor advertising of unhealthy groceries. Government also supports people to choose products according nutritional regulations by the taxation of retail trade and food service (Sosiaali- ja terveysministeriö 2008).

5 OVERWEIGHT TREATMENT

5.1 Goals of overweight treatment

The goals of the overweight treatment are prevention and overweight related diseases treatment. Already 5−10% weight loss decreases risks to get obesity related diseases. It also eases the symptoms and decreases the need of medical intervention (Käypä hoito suositus 2007). There are numerous different treatments of overweight. These can be divided in basic care including brief intervention, Very Low Calory Diet (VLCD), medical treatment and surgery. According to Burge, Steenkiste, Music & Styn (2008), the majority of adults who have overweight have attempted more than one weight-loss treatment.

It is important to set reasonable and realistic goals for weight loss regardless of the used method (Käypä hoito suositus 2007). The first goal should always be the prevention of weight gain (Hill, Thompson & Wyatt 2005, 65). Jeffery, Mayer & Wing (1998) reported that people who reached their weight loss goals were able to maintain better their reduced weight compared to people who did not reach their goals. One should also counsel people for modest goals and expectations.

5.2 Basic overweight treatment

The basic care of overweight includes nutrition counselling, activation to exercising and supporting to the behavioural changes. The main tools for behavioural changes are food diary, stress management and problem solving strategies. The client must learn new and get rid of some old habits. By using these tools, the client can learn to control overeating, mistakes and to avoid risk situations (Mustajoki et al. 2007, 444).

Some people can benefit from brief interventions implemented together with the help of health professionals. The health professionals can help to identify the overweight and

introduce different treatment and weight control methods to the clients. Some follow up meetings can also be helpful. (Mustajoki, Alila, Matilainen & Rasimus 2007, 445). Control meeting can be helpful after weight loss program in order to prevent or postpone the beginning of the weight gain (Hakala & Fogelholm 2006, 1244).

Generally, basic treatment is implemented by serially counselling the overweight person individually or in groups. Group treatment has often resulted in greater weight loss than individual treatment (Renjilian, Perri, Nezu, McKelvey, Shermer & Anton 2001, 719). This may partially be due to the fact that in groups the participants can change their experiences and support each other. Unfortunately, it seems that the weight loss is rarely permanent in groups where the risks of obesity related diseases are the biggest and the need for weight loss is the most important (Utriainen et al. 2006, 35). Typically, the weight loss groups meet 10−20 times for 60−90 minutes (Mustajoki et al. 2007, 444).

Nutrition and diet play a central role in the basic care of obesity. The ideal weight maintenance diet is quite similar to the current Finnish nutritional recommendations (Valtion ravitsemussuositukset 2005). In nutrition based treatment, the client is counselled to change the eating habits. The client needs detailed information about the available food to be able to make changes in nutrition. Motivation and positive mood should be provided by counselling. The nutrition counselling should also be appropriate and comprehensible to the client (Torpström & Paganus 1999, 340).

It has been estimated that modifying energy balance by only 100 kcal per day could prevent further weight gain in most of population (Hill, Wyatt, Reed & Peters 2003, 855). During the weight loss period, the total daily energy intake should be 1200−1500 kcal. It can lead to 4−12 kg weight loss during the following 4−36 months. The energy intake can be decreased for instance by avoiding fatty food and increasing amount of water- and fibre rich food in the diet. The use of sugar should also be kept at a reasonable level. At the same time, one should decrease the size of the portions and minimize the use of alcohol. For example, an obese man that uses a lot of alcohol can lose weight on the average two kilograms in four to five months, only by the alcohol use cessation (Mustajoki et al. 2007, 444).

It is important to note that the diet should be flexible. Too tight diet may lead to frustration and neglecting the diet instructions. It is easier to reach the goals by setting reasonable sub goals (Torpström & Paganus 1999, 340).

Physical activity helps especially in weight maintenance when practiced regularly. It has also an impact to weight loss. Several studies report that the impact of physical activity is often not significant from the viewpoint of weight loss (Mustajoki et al. 2007, 445). A good approach is to have daily exercise regularly in small periods thorough the day (Kannas et al. 2008, 128). It is enough to exercise 45−60 minutes per day that burns about 300 kcal per day and 2100 kcal per week. However, after a weight loss period, one may need even 2500−2800 kcal energy expenditure to avoid weight gain. (Mustajoki et al. 2007, 445).

5.3 Other treatments of overweight

If the basic treatment is not successful, one nutrition based treatment option is also VLCD. The key idea is to give to the patient only 800 kcal per day by using ready meal substitute products. The substitute products include all necessary nutrition sources such as protein, carbohydrates, lipids, vitamins and minerals in right proportion. The VLCD diet is normally used for 6−12 weeks but not more than for 16 weeks. It is typically used with patients whose BMI is 30 or more. The patient should go through medical investigation before starting the VLCD diet. Usually, the VLCD is not recommended for people under eighteen years old (Mustajoki et al. 2007, 445).

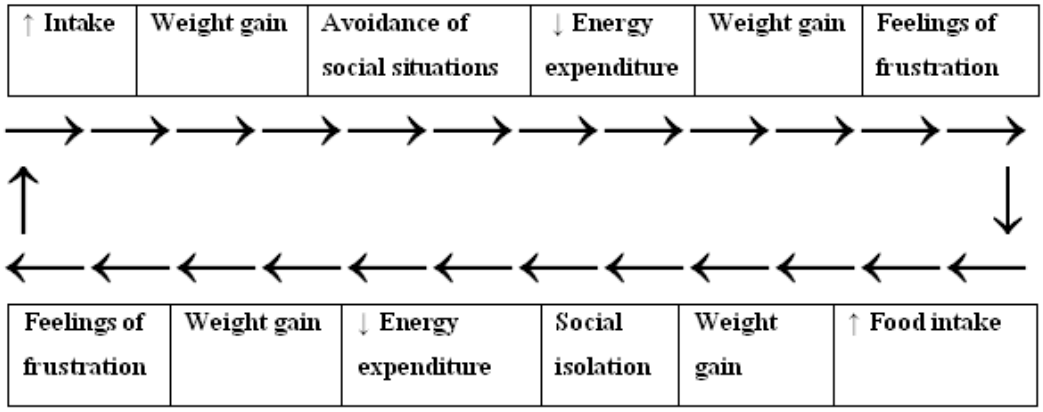
The medical treatment is one option to support weight loss if patient does not succeed to lose weight by basic treatment. Medicines are recommended to be used only if the BMI is 30 or more. Medicines affect in different ways. For example, Orlistat affects bowel by preventing the absorption of fat from food to metabolic system**.** Another example is Sibutramine that affects brains by decreasing the appetite (Mustajoki & Leino 2002, 104). Medicines are meant to give support to lifestyle changes and are therefore not just for losing weight.

Surgery is typically considered as the last option if the patient is seriously obese and dieting does not help to reduce weight. It is the most effective way to lose weight. However, the surgery has always a complications risk. Therefore, surgeries should be considered seriously. Surgery typically aims at reducing the absorption of nutrition or amount of eating. A perquisite for surgery is typically a serious and unhealthy obesity and obesity related medical diseases. If the individual has an eating disorder, high consumption of alcohol or a mental disease, the surgery is not an option (Sane 2006, 257−260).

5.4 Weight maintenance as part of overweight treatment

The biggest challenge in overweight treatment is to find good methods for improving the weight maintenance (Hakala & Fogelholm 2006, 1244). There is only a limited amount of knowledge of successful prevention and treatment strategies of overweight (Lobstein, Baur & Uauy 2004, 7; Müller & Danielzik 2007, 89). In proper and long-term weight maintenance, the key issue is to change the habits permanently. The main idea is to identify and eliminate the biggest nutritional weaknesses and create a regular and controlled meal rhythm (Aro 2008, 133). According to Hill et al. (2005), it is also important to increase physical activity, not for weight loss but to prepare individual for keeping the weight off.

According to the International Obesity Task Force (2008), a person can have several intentional weight loss periods, depending on a concept called weight cycling. The weight cycling is illustrated in Graph 1. The cycle involves both increasing energy intake and decreasing energy expenditure, resulting in frustration and social isolation. The weight cycling does not harm psychopathological condition of an individual but may have a connection to a lower feeling of well-being. The weight cycling may also expose the person to eating disorder.



GRAPH 1. The weight cycling (Dudek 2006)

The most important reason for failures in overweight treatment is the short-term diets followed by a quick return to the old habits. Different kinds of fashion diets such as Atkins, Montignac and Zone are popular. Quick weight losses can be provided but it cannot be used for a long time (Aro 2008, 132). According to Hill et al. (2005), a key reason for failing in weight maintenance is focusing only on regulation of eating. Those who are able to make substantial increases in physical activity are most likely to succeed. In Burke et al. (2008), it was reported that the research participants were asked to name three reasons of difficulties to be successful in weight maintenance. The most common answers were: difficult to make and maintain lifestyle changes, no time, lack of support, food is easily accessible and feelings of deprivation.

6 PREVIOUS RESEARCHES ON WEIGHT LOSS

Fogelholm, Kukkonen-Harjula, Nenonen & Pasanen (2000) studied a group of 85 obese women whose age varied within 30−45 and whose BMI was about 34. The group members participated to a 12-week VLCD weight maintenance program. After the program, the participants were divided in three weight maintenance groups: 1) diet only, 2) diet and moderate walking exercise and 3) diet with a lot of walking exercise. The three groups had meetings once per week for 40 weeks. The level of participation after one year was 94.1% and after two years from the program start the participation was 87.1%. According to the reported results, the participants had lost on the average 13.1 kg of their weight in the end of 12 weeks VLCD period. The diet group gained weight back but the groups that had also exercising continued losing weight during the 40-weeks maintenance period. After two years from the beginning of the program, all groups had gained weight back. In addition, the differences between the groups had become smaller. The best results were reached by the group that combined diet and moderate walking exercise.

Borg, Kukkonen-Harjula, Nenonen & Pasanen (2002) continued the study of Fogelholm et al. (2000) by investigating the relation of weight loss and exercise with middle age men. The studied group consisted of 90 men at ages of 30−50 years with average BMI of 33.1. The group participated to a 12-week VLCD program and it was divided in three weight maintenance groups after that. The groups were: 1) diet counseling, 2) diet counseling and walking three times per week and 3) diet counseling and physical exercise three times per week. During the VLCD period, the average loss was 14.2 kg (13%) and during the weight maintenance period the weights remained unchanged. After two years, 73% of the participants had gained on the average 9.6% of their weight back and there were not significant differences between the groups.

Renjilian et al. (2001) studied the preferences between group and individual treatment. The goal was to determine whether the treatment type improves the weight loss outcome. The possible differences in improvement of the psychological functioning were investigated. A number of 75 obese adults participated to the research and there were divided into four

groups. Two of the groups were used to study the effects of individual therapy compared to group therapy and two groups were used to study whether the preference of the therapy type had an impact on the success. The participants were randomly divided in the groups and the BMI scale was used to measure the weight loss.

The psychological functioning was measured by well-known General Severity Index **(**GSI**),** Symptom Check List **(**SCL-90) and Beck Depression Inventory (BDI) measures for secondary outcomes. Participants in both groups received 26 weekly sessions of standard cognitive–behavioral weight management training. Total of 77% of the participants completed the program. It was concluded that group therapy produced significantly greater weight loss than the individual therapy and this result was not dependent on the preference regarding the therapy type (individual or group). The mean weight loss in the group was 11 kg, while the program carried out individually produced 9.09 kg average weight loss. The improvement in the psychological functioning was concluded equivalent.

Kroke, Liese, Sculz, Bergmann, Klipstein-Grobusc, Hoffman & Boeing (2002) focused on evaluating the influence of recent weight change on the subsequent weight change. The German non-smoking participants included 6689 men and 11 312 women. In this study, the weight cycling was defined as intentional weight loss and unintentional weight gain of more than 5 kg during the past two years. The mean weight loss of men was 0.2 kg and the mean weight loss of women was 0.4 kg of their body weight within the two years period. Participants who lost weight quickly were most frequently found among those with large subsequent weight gain. According to the study weight cycling was defined with 16% of the participants. About 60 % of the participants managed to maintain a stable body weight. The weight cycling was also concluded to be one strong predictor of weight gain.

7 RESEARCH QUESTIONS

The main focus of this study was to investigate weight loss in a group. The goals were to find out if the factors like physical activity or motivation guarantee successful weight loss and maintenance. The research questions are based on previous studies of Lang et al. (2006) and Fogelholm (2006) that studied mainly potential weight gain after the weight loss program and the importance of physical activity in weight loss.

(1) Successfulness of weight loss in the study group
(2) Lack of peer group
(3) The impact of various key factors to weight loss

8 IMPLEMENTATION OF THE RESEARCH

8.1 Data collection

The main data of the research was collected in the group meetings of the 10-week program and in the control meeting 6 months after the program. The data is based on the weights measured in the meetings and on a questionnaire (APPENDIX 1&2) given to the participants in the final control meeting. Both fixed and open ended questions were used in the questionnaire. The main attention focused on fixed questions. The open ended questions were created to give more detailed information and to support fixed questions.

The participants of the weight loss group were searched by an announcement in a newspaper and at health centers' note boards. There were in total 76 applications to the group. The criteria for accepting participants to the group were BMI of 30 or more and diabetes Type 2. Those who passed both criteria were chosen to the group. The remaining places were determined randomly. The final group had 21 members consisting of 12 women and nine men. However, two of the men left the group immediately after the first meeting due to lack of time. The participation of the other group members to the meetings varied. The average number of participants at meetings was 13.

The participants were weighted 8 times during the weight loss program and once 6 months later at a control meeting. This information was used to analyze the weight loss or gain during and after the program. Those participants who did not come to control meeting were asked to weight themselves at home and announce the weight in questionnaires they were mailed. It is often practical to use weight and height data self-reported by the study subjects from the questionnaires. However, the validity of self-reported height and weight has been questioned in many studies (Sherry, Jefferds & Grammer-Strawn 2007, 1159).

The other data was collected through a questionnaire with 20 questions including 12 fixed and 8 open-ended questions. The questionnaires that were sent to the participants included

a question about the current weight of the respondents. The questionnaire was in paper format. The participants were given an identification code for the purpose of later identification. The same code was used in the questionnaires. There were four participants who filled the questionnaire at the control meeting (December 2th, 2008) and questionnaire was distributed in closed envelopes on the next day (December 3th, 2008) to other participants. The mails were included with a cover letter and a ready-filled envelope with a stamp. A Short Message System (SMS) reminder was sent to the participants who had not replied two weeks after sending the letters. The questionnaire was returned and the program was completed by 68.4% (13) of the participants.

The whole material was analyzed after receiving the filled questionnaires. The weight reductions and statistics based on the weight loss were counted. The participants were divided in categories by gender and various success factors. After that, a comparison between the groups was made followed by a more detailed analysis of the results of the fixed questions and creation of the result graphs. Finally, the open-ended questions were analyzed again.

8.2 Weight loss group meetings

First meeting: The participants familiarized with each other and the group leader (a health center nutritionist) for the first time. The participants discussed together the roles and ways of working at the groups. The importance of equality and confidentiality among the participants were considered. The participants had possibility to share their own targets and former weight loss experiences. The meeting included discussions how to keep and increase the motivation. The leader of the group introduced the schedule and the topics of the program. The topic of the lecture given in the meeting was: “How to food diary to support weight loss”. The idea of the food diary is to mark the time and place of meal, types and proportions, the appetite and the mood. Food diary can be used to see the disadvantages of eating habits and to control own eating.

Second meeting: The participants attempted to get an acquaintance with reasonable weight loss. The essential target was to learn how to decrease the energy intake of food and drinks. It was learned that different food-stuff has different amount of energy**.** The basic information about carbohydrates and proteins was also discussed in the meeting. The main source of energy is fat. Therefore, fat got a lot of attention in the discussions. Human being needs fat but the quality of fat is important as soft unsaturated fats should be favored. The participants were explained that the hidden fats are non-visible but included in many food types such as milk- and meat-based products.

Third meeting: The subject of the third lesson was about ways to control eating habits. Several things that control and affect eating happen often already before eating. The relevant issues here were: types of food is bought, usage of shopping list and avoiding desires. These things can be learned by changing some habits. Concrete experiences to control eating were discussed together in the group. Ways to overcome the desires and risk situations were also discussed. The participants had to think about their own risk situations and when the weight gain usually takes place. The discussions raised up issues about the timing and permanence of the weight gain.

Fourth meeting: Diabetes nurse presented a lecture about the Type 2 diabetes. It is basically a disease caused by a poor way of living. It can be treated by controlling weight exercising and healthy food in many cases. Therefore, medical treatment can be avoided in many cases. The diabetes nurse also explained about her duty. The diabetes nurse informed that the counseling is available to anyone. A few of the participants measured their own blood sugar levels.

Fifth meeting: The meeting was the first physical exercising lesson. A physiotherapist kept a circuit training lesson by using fitness equipments and weights. Every exercise was done two times in one minute periods. Moreover, a stretching before and after the exercising was carried out. The physiotherapist attempted to find short exercises so that the exercises can be carried out at home without any equipment.

Sixth meeting: The group met exceptionally at supermarket (Kokkola Citymarket). The group was divided in four subgroups and each subgroup was given a food type. The participants were supposed to find the best and the worst products for weight losers in the given food group. The given food groups were: breads, cold cuts, fats and milk products. The groups had to read the etiquettes and note the following information: amount of fats, amount of salt **(**in bread that should be 1.3% or below) and the amount of fibers (at least 6g per 100g). The subgroups introduced their findings to the other subgroups in the end.

Seventh meeting: The topic of the second physical exercise lesson was Nordic walk. The health center physiotherapists taught the usage of walking sticks. The group carried out half an hour of Nordic walking jog. The exercise lesson included stretching in the end.

Eight meeting: The barriers of eating habits and weight maintenance were discussed. The key topics included permanent weight maintenance and how to manage it in the future. Group shared their experiences of their weight loss and the program. The participants filled up feedback paper anonymously to analyze were the goals realistic or not. The most useful lesson of the program was also chosen by the participants. Most of the group members named lesson number six.

Control meeting: The meeting was held in December 2008, about six months after the eight meeting. The participants were sent invitations to the meeting separately. Participants were asked to announce their attendances. Only a few participants informed their attendance. The reasons for not participating the control meeting included work, sickness and lack of time. The weather was poor; the roads were icy and slippery at the time of the control meeting. It may have affected the poor participation. Finally, only four members participated the control meeting. The members shared their experiences of weight loss without peer support. The participants hoped meetings for instance every second month to support their weight maintenance.

8.3 Research ethics

The permission to follow-up the health centre weight loss group was obtained from the nutritionist who was responsible of the group. The selected group members were explained that the participation to the research is voluntary. It was also made clear that everyone can participate to the program regardless of one's participation to the research. The data concerning the study was used only by those who voluntarily took part in the research. All the group members signed voluntarily an agreement in order to use data concerning their weight loss in this research. Researcher's telephone number and electronic mail address were delivered to the participants in case of enquiries from the participants. (Burns & Grove 2007, 219).

The participants were assured that their data and answers are handled confidentially. Only the researcher had the access to the data. Participants were given number identification so that only the researcher could identify the participants. The previous literature and material used in this research were found from reliable sources. All studies, articles and books are at most 10 years old. A lot of literature were collected and analyzed widely to get a good insight to the topic. (Holloway & Wheeler 2004, 61)

9 FINDINGS OF THE RESEARCH

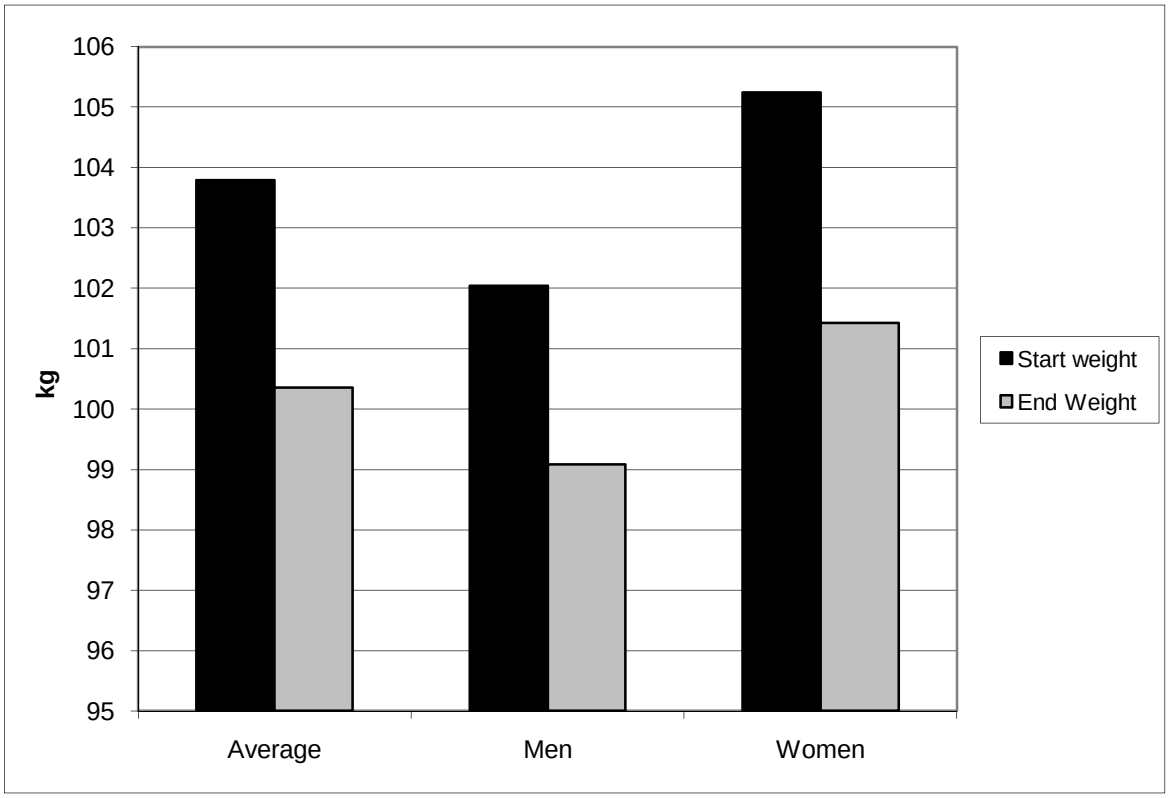
9.1 Background information of study

In this section the results of the empirical study regarding the 10-week weight loss program are presented. The study took place in Kokkola, Finland. The studied group had eight meetings in Spring 2008 and final control meeting in December 2008. There were in total 19 participants in the group. Only 13 participants completed the program.

The participants filled a questionnaire (APPENDIX 1 & 2) and were also weighted once more in the control meeting. Unfortunately, only four participants attended the meeting. The remainder of the participants was asked to inform their current weight and fill the questionnaire at home. One considers here only the results of the 13 people that completed the whole program. The results are divided and discussed below according to the research questions set in Section 7.

9.2 Successfulness of weight loss in the study group

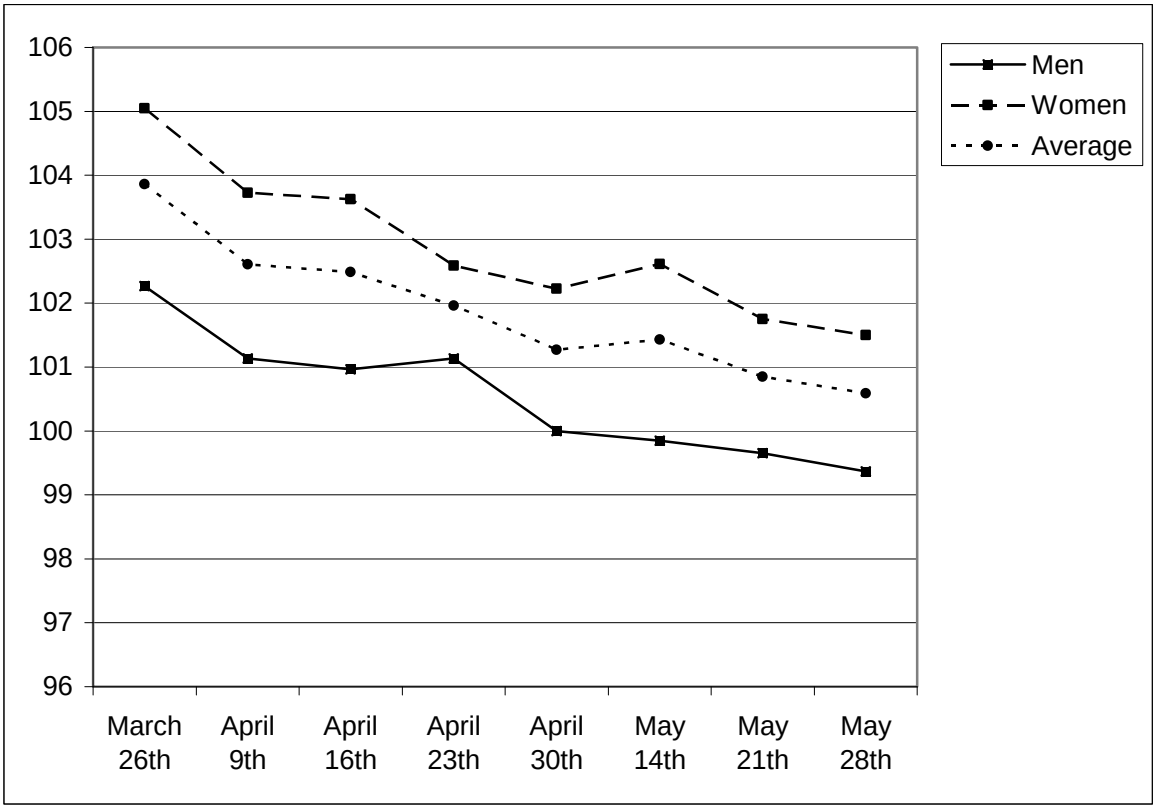
In Graph 2 the average starting and ending weights of men and women and the average over the whole group are presented. The start weight refers to the weight before starting the program whereas the end weight gives the weight at the end of the 10-week program.



GRAPH 2. The average weight loss during the 10-week program

The average starting weight of the women that participated to the study was higher than the starting weight of men based on the graph. The average weight loss of women was 3.63% (3.82 kg), whereas men lost on the average 2.90% (2.96 kg) compared to their start weight. Women succeeded in losing weight better than men during the program. The differences between men and women were not large. The mean weight loss of the whole group was 3.30% (3.43 kg) during the 10-week program.

Graph 3 describes a detailed analysis of the average weights of men and women in each weighting during the program. There were a total of eight weightings. The first weighting on March 26th refers to the start weight of men and women and the whole group, respectively.



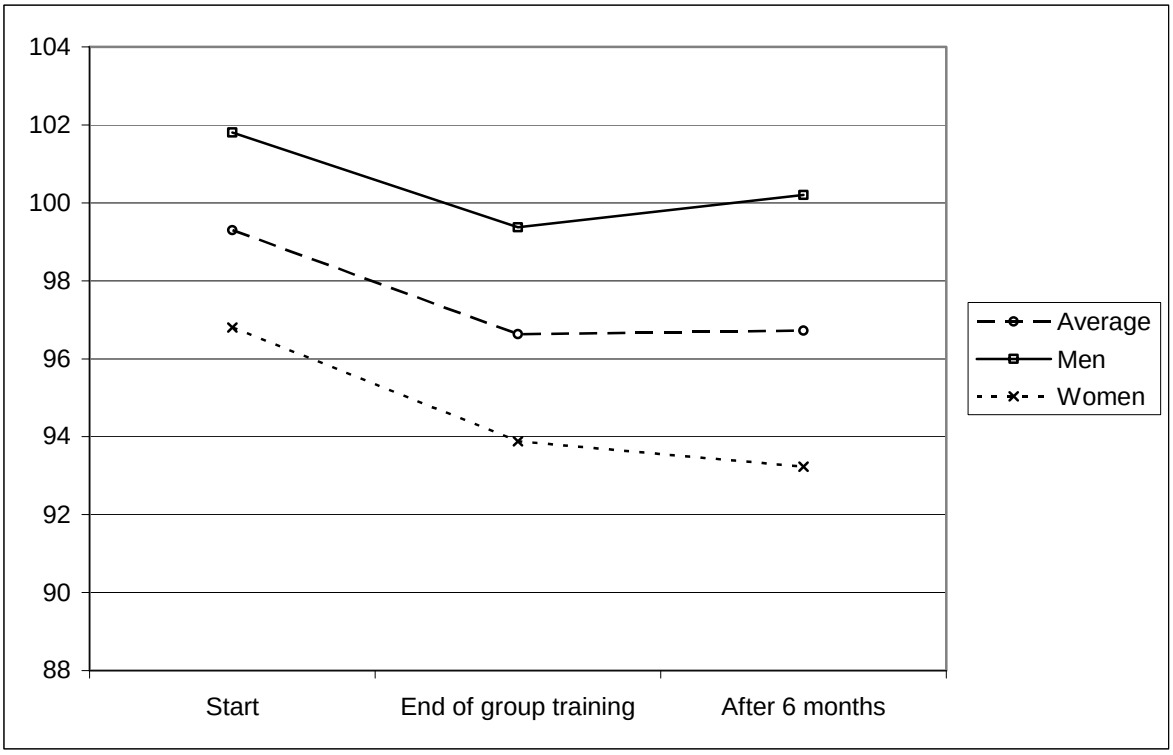
GRAPH 3. Weights during the program.

Both men and women clearly lost their weight between the first and second weighting based on the results. Men lost 1.11% (1.13 kg) and women 1.26% (1.33 kg) compared to the start weight. One can also see that both men and women had periods where their mean weight was increasing. The average weight of women increased between April 30th and May 14th. Correspondingly, the average weight of men increased slightly between April 16th and April 23th. The weight losses appeared more consistent and slightly slower towards the end of the program.

9.3 Lack of peer group

In Graph 4 the average starting weight, the average weight after the 10-week program and the average weight six months after the program are described for men and women separately and for the whole group. The main purpose of the graph is to illustrate the successfulness of the group after the program without peer group support. One must note

that here only results of three men and three women are considered, as it was not possible to obtain all three (start, end of ten weeks program and six months after) weights for the other members of the group.



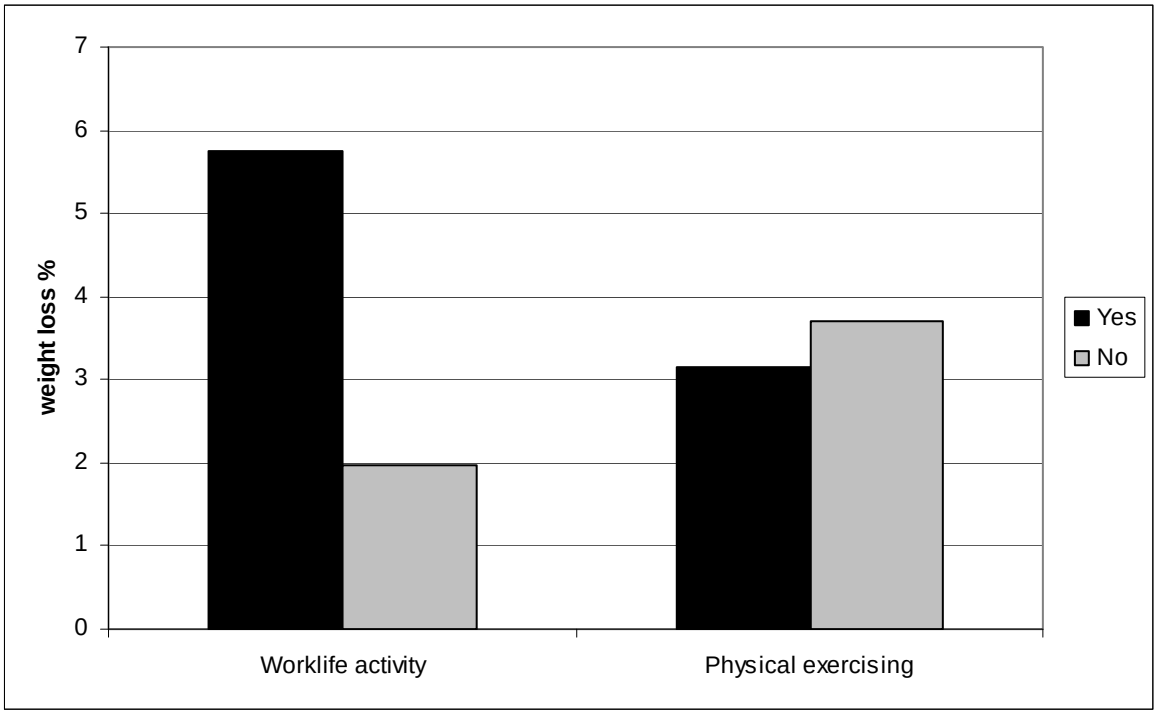
GRAPH 4. The average weight during and after the program

Both men and women clearly succeeded in losing weight during the program based on Graph 4. The average weight loss of men was 2.39% (2.43 kg) and the average weight loss of women was 3.02 % (2.92 kg) compared to the start weight. The women were able to lose their weight after the program, resulting in total weight loss of 3.69% (3.57 kg). The average weight of men on the contrary increased after the program, resulting to overall weight loss of 1.57% (1.60 kg) since the beginning of the program. Women continued the exercising also after the program whereas men returned back to their old living habits based on interviewing the participants.

9.4 Impact of various key factors to weight loss

9.4.1 Physical activity

The impact of physical activity is illustrated in Graph 5. The graph shows the role of activity in everyday life (working) and physical exercising.



GRAPH 5. The impact of physical activity on weight loss

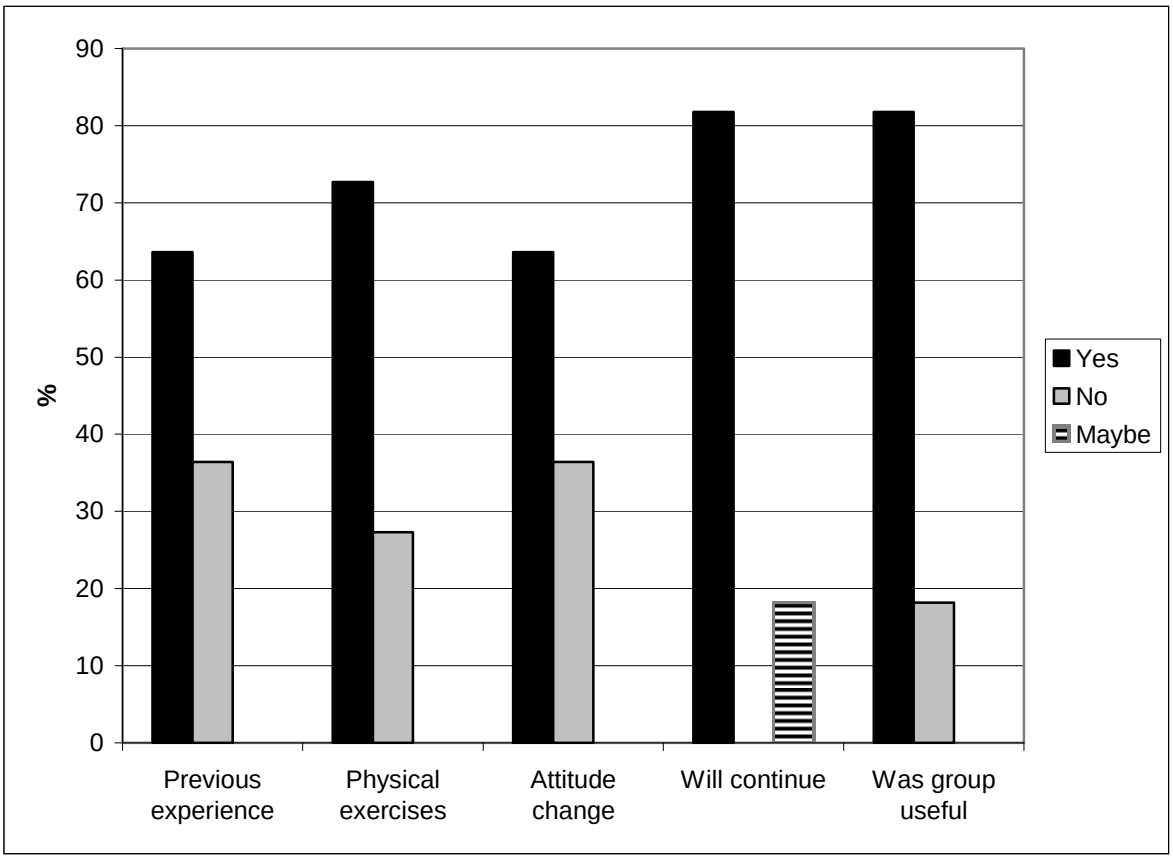
According to the graph, the participants who have a job and were thus active in work life succeeded clearly better than the others such as pensioners. They were able to lose their weight even 5.76% (5.78 kg) during the program, compared to 1.97% (2.09 kg) achieved by the others.

The results in Graph 5 also support the idea that exercise does not have significant role in weight loss. The participants who did not do physical exercising during the program succeeded better in their weight loss than those who included physical exercising in their program. The difference was however small (about 0.5%). The finding is in line with the previous studies. It also emphasizes the role of exercising especially in weight maintenance

instead of weight loss. Nevertheless, about 73% of the participants of the studied group did physical exercising during the program.

9.4.2 Motivation

Graph 6 illustrates the opinions of the group members regarding various issues related to the program. The graph shows the percentage of yes, no and maybe answers. The issues considered in the graph are: experience on group-based weight control, attitude change, usefulness of the program and willingness to continue weight loss after the program.

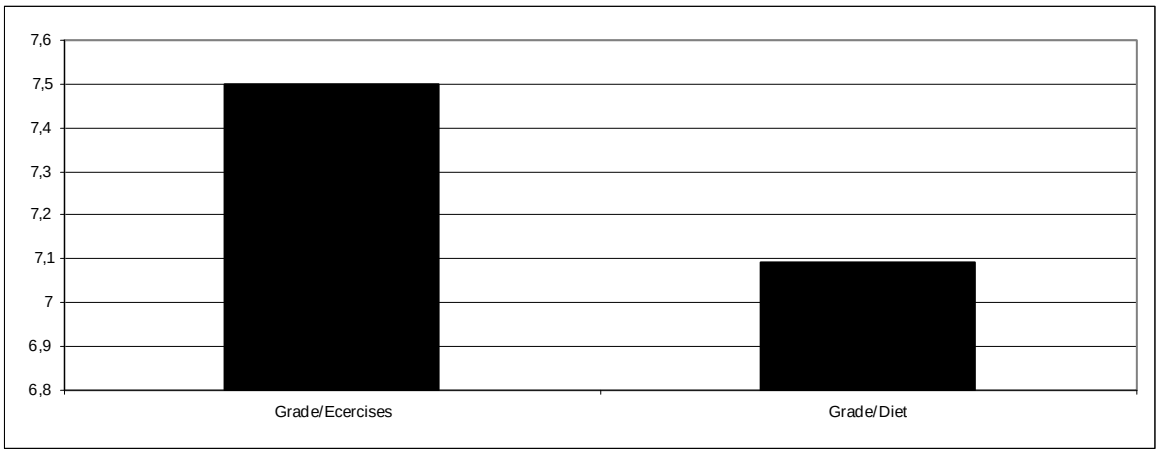


GRAPH 6. Opinions regarding the program

About 64% of the participants had previous experience on the group-based weight control programs indicating possible positive attitude towards such programs based on the graph. About 73% of the group members did physical exercises during the program. The physical exercises appeared to be an important part of weight control programs. About 64% replied that this particular program has changed their attitude towards weight loss. The group indicated in the questionnaire that the level of determination and amount of exercising has increased during the program. The participants experienced the weight loss more as a result of permanent life style change. The participants understood the long-term benefits of slower weight loss treatment after the program. Moreover, the group considered very useful the new information for example on groceries and tools for weight control (such as diary and sub goals) as well as the support from the other group members.

The large majority of 82% also stated the willingness of continuing weight loss that had a possible positive effect of the group. None of the respondents planned to stop their weight control. About 82% of the participants considered the group useful from the viewpoint of their weight loss.

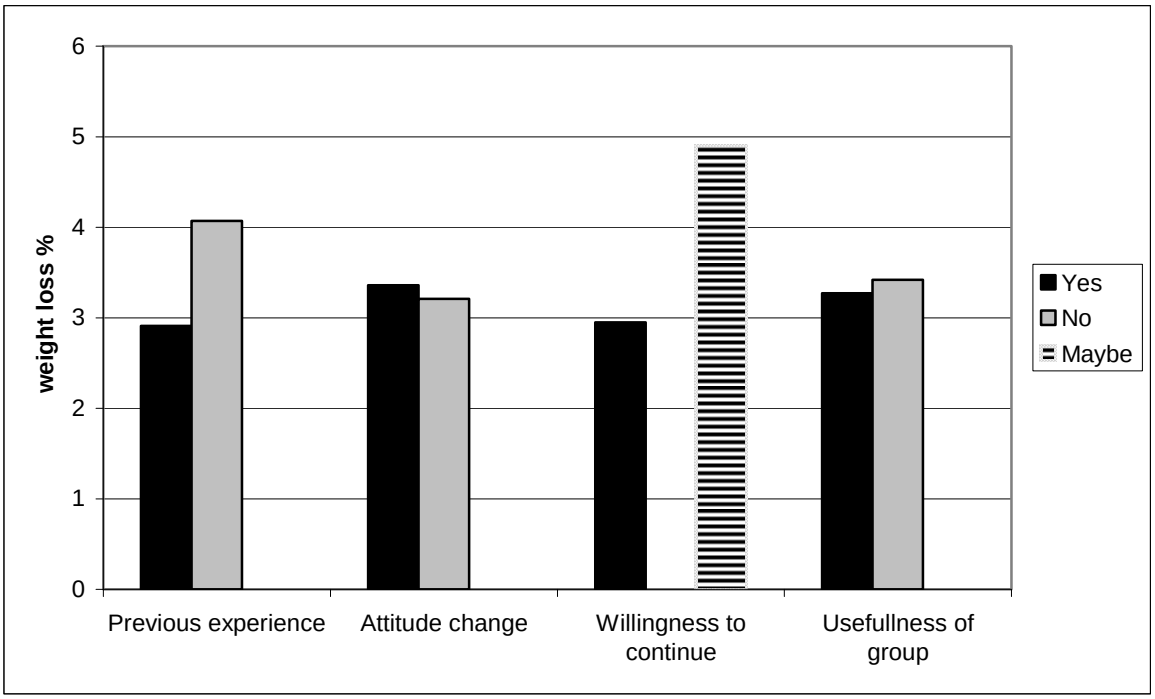
Graph **7** shows the average grades of exercising and dieting based on scale from one to ten. The grade shows the preference and effectiveness of the methods.



GRAPH 7. Grades of weight control methods

Exercising obtained a slightly higher grade (7.5) than diet (7.1) according to Graph 7. One can conclude that both methods are considered to be good among the participants based on the grades.

In Graph 8 the success factors of motivation are analysed. The graph shows the difference between the start and end weights in per cents depending on the background, attitude and motivation.



GRAPH 8. The analysis of success factors

The results in Graph 8 show that the previous experience on weigh control programs did not have a positive impact on the success in this program. On the contrary, the participants with no previous experiences were able to lose their weight 1.16% more than the participants with previous experiences.

The attitude change towards weight loss did not have a significant impact on the results according to Graph 8. The difference was only 0.15%. However, participants that were

uncertain about their willingness to continue their weight loss succeeded clearly better than those who were sure to continue weight loss. The difference between “yes” and “maybe” answers is 2.0%. This can be partially due to the fact that those who were uncertain probably succeeded well in the program and possibly reached their objectives. One can also conclude that the opinion regarding the usefulness of the group also did not have much impact on the success (difference 0.14%), indicating that one can succeed in weight loss even though one does not consider the environment of methodologies good.

10 CONCLUSIONS

The goal of this thesis was to study the overweight and weight loss. The thesis discussed the most important background issues and related terms such as obesity, reasons of overweight, the health risks and prevention and treatment of overweight. In addition, a brief literature review is given. The main focus of this study was weight loss in a group. It was approached through a case study by collecting data in Kokkola, Finland during a 10-week weight control program arranged in Spring 2008. A control meeting held after the termination of the studied group program was also included in the research.

A number of findings were identified based on the obtained results. In general, the group study was successful since on the average the participants were able to lose 3.3% of their weight during the 10 weeks. A more detailed analysis revealed that on the average women were more successful than men and the weekly weight losses became smaller towards the end of the period. On the other hand, the male participants started to regain weight during the maintenance period after the program meanwhile the female participants succeeded to lose weight also after the program. It indicated that female participants have better abilities of lifestyle changes.

It was found that the participants who did not have physical exercises during the program succeeded better in losing weight than those who had only diet. The difference between physical exercising and dieting from the viewpoint of weight loss was found small (0.5%). However, from the long-term weight maintenance viewpoint the physical activity can be considered important as stated in the previous research.

The results also revealed that participants who had previous experience on weight loss programs were not able to lose their weight as well as the newcomers. On the other hand, the positive or negative attitude towards the program appeared to have no effect on the successfulness of the weight loss. These results indicate that actions of the participants are more important than thoughts. This conclusion is supported also by the fact that the participants who were uncertain about their willingness to continue the weight loss succeeded to lose weight better than those who were sure to continue weight loss.

The most important factor from the success point of view in the group appeared to be the activity of working life. The participants who were working or otherwise active in work life were almost 4% better than the others, for example pensioners.

11 DISCUSSION

Conducting a final thesis is more than a written work that requires to search and collect information. It is a very time-consuming process. It acquired one year and seven months in order to complete this research. Interaction with the other studies, family and final thesis has been challenging experience. Hand books about research were also a necessary utility. Books by Hirsjärvi, Remes & Sajovaara (2007) and Burns and Groves (2007) are worth to mention because of good information and advices.

The possibility to follow-up the process of weight loss in the group was interesting. The lessons of the nutritionist and other lectures were useful and provided information about healthy lifestyle. The discussions with the participants of the weight loss group made it also possible to understand the difficulties of losing and controlling weight.

The research would have needed more time for planning the project before beginning. The data was obtained even though the questionnaire could have been more precise; some questions were misunderstood by the respondents. For example, when the respondents were asked to tell about their previous weight loss experiences, the previous group name (for instance Weight Watchers) was given instead of describing the previous experience that was expected.

Two control meetings were included in the original plan. The first control meeting in December did not really work out. Only four of the participants attended and only a few participants announced that they are hindered. It was decided that the second control meeting is omitted because of the failure of the first meeting. In addition to bad weather the reasons for the poor participation to the control meeting can include the fact that the participants were shamed of their poor performance. It has been reported that perceiving oneself as being overweight may contribute to underreporting of the weight (Sherry et al. 2007, 1159). Christmas and the Independence Day were approaching and people might have been busy with other activities. It might have been better to have the control meeting in another time.

The questionnaires were sent by post to the participants who were unable to attend the control meeting and they were asked to fill and return it. The participants were also acquired to reveal their current weight in the study. Therefore, this information is not completely reliable. For example, the weight scale that the participants used might have been different than the weight scale that has been used in the group meetings. The results that were revealed by the participant can be euphemised.

This research focused only on weight loss. The weight loss from the perspective of the health benefits would be interesting and worth of further investigation. For example, an investigation about the effects of a 10-week weight loss program to central adiposity and to reducing the waist circumference would be interesting. The effects of weight loss on blood pressure, blood sugar and blood cholesterols levels could be further investigated by taking blood tests and blood pressures before and after the program. These measurements could have provided much better figure of health benefits concerning weight reduction, rather than number of lost kilograms.

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APPENDIX 1/1

Painonhallintaryhmä kevät 2008 ,kysely

1.Ikä:

2. Ammatti:

1. Opiskelija 2. Eläkeläinen 3. Kotiäiti tai-isä 4. Työntekijä 5. Alempi toimihenkilö
6. Ylempi toimihenkilö 7. Yrittäjä

3. Mahdolliset sairaudet:

_____
_____

4. Kerro oma näkemyksesi milloin ja miksi painosi on alun perin noussut?

_____
_____
_____

5. Mitä seuraavista menetelmistä käytit pudottaaksesi painoa:

1, Liikunta : Kuinka usein viikossa _____

2, Ruokavalio: minkälainen_____

3, Muu, Mikä: _____

6. Jos käytit jotain edellä mainittua menetelmää, niin kuinka hyvänä/ miellyttävänä sitä pidit? Arvostele vain käyttämäsi menetelmät.

	Erittäin vähän									Erittäin paljon
1 Liikunta	1	2	3	4	5	6	7	8	9	10
2 Ruokavalio	1	2	3	4	5	6	7	8	9	10
3 Muu	1	2	3	4	5	6	7	8	9	10

APPENDIX 1/2

7. Onko sinulla aikaisempia kokemuksia laihduttamisesta?

1 Kyllä 2 Ei

8. Jos vastasit edelliseen kyllä, niin kerro kokemuksistasi

_____
_____
_____

9. Aiotko jatkaa laihdutusta?

1 Kyllä 2 En 3 Ehkä

10. Jos vastasit edelliseen kyllä tai ehkä, niin kerro mitä menetelmiä aiot jatkossa käyttää:

1 Liikunta
2 Ruokavalio
3 Muu, Mikä?_____

11. Oliko sinulla paino tavoite aloittaessasi ryhmässä?

1 kyllä, paljonko? _____ 2 Ei

12. Jos sinulla oli tavoite, oletko saavuttanut tavoitteesi?

1 kyllä 2 En vielä

13. Onko asenteesi laihduttamiseen muuttunut?

1 Kyllä 2 Ei

14. Jos vastasit edelliseen kyllä, kerro miten?

_____
_____

APPENDIX 1/3

15. Hyödyitkö painonhallinta ryhmästä?

1 Kyllä 2 En

16. Jos vastasit edelliseen kyllä, kerro ohjelman hyödyistä tarkemmin

17. Koitko jotain asioita negatiiviseksi?

1 Kyllä 2 En

18. Kerro negatiivisista kokemuksistasi

19. Onko käyttäytymisesi mielestäsi muuttunut laihduttamisen myötä?

1 Kyllä 2 Ei 3 Ehkä, en osaa sanoa

20. Jos vastasit edelliseen kyllä, kerro tarkemmin miten?

KIITOS!

APPENDIX 2/1

Weight control group Spring 2008 questionnaire

1. Age:

2. Occupation:

1. Student 2. Pensioner 3. Home mother or -father 4. Employer 5. Lower official
6. Higher official 7. Businessman

3. Possible diseases:

_____
_____
_____

4. Your own view when and why you gained weight originally?

_____
_____
_____

5. Which of following methods did you use to lose weight?

1, Exercise: times per week _____

2, Diet: What kind_____

3, Else; What: _____

6. If you did use some of the aforementioned methods, how good/pleasant did you consider it? Evaluate only the methods you used.

	Very little									Very much
1 Exercise	1	2	3	4	5	6	7	8	9	10
2 Diet	1	2	3	4	5	6	7	8	9	10
3 Else	1	2	3	4	5	6	7	8	9	10

APPENDIX 2/2

7. Do you have any previous experiences about weight loss?

1 Yes 2 No

8. If you answered yes, tell about your experiences

_____
_____
_____

9. Are you going to continue dieting?

1 Yes 2 No 3 Maybe

10. If you answered yes or maybe, tell what methods you are going to use in the future:

1 Exercise
2 Diet
3 Else what?_____

11. Did you have a target weight when you started in the group?

1 Yes, how much:_____ 2 No

12. If you had a target weight, have you reached it?

1 Yes 2 Not yet

13. Has your attitude towards weight loss changed?

1 Yes 2 No

APPENDIX 2/3

14. If you answered yes, describe how?

_____
_____

15. Did you find the weight control group useful?

1 Yes 2 No

16. If you answered yes, describe the benefits of the program in detail

_____
_____
_____

17. Did you experience some things negative?

1 Yes 2 No

18. Tell about your negative experiences

_____
_____
_____

19. In your opinion, has your behavior changed with weight loss?

1 Yes 2 No 3 Maybe, can't say for sure

20. If you answered yes, tell in detail how?

_____
_____
_____

Thank you!